UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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ART UNIT	PAPER NUMBER
2616	

NOTIFICATION DATE	DELIVERY MODE
07/22/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/697,622	NURMINEN ET AL.
	Examiner	Art Unit
	WANDA Z. RUSSELL	2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 March 2008</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-68</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-68</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

3/5/2008 has been entered.

Double Patenting

2.   Applicant states in the Argument that claims 15-34 and 49-68 are provisionally

rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 15-34

and 49-68 copending Application No. 10/674679. The Application No. 10/674679 was

abandoned on 2/4/2008; applicant needs to update the status.

Claim Rejections - 35 USC § 102

3.   **Claims 1-10, 13-14; 15-23; 24-26, 29, 31-34; 35-44, 47-48; 49-57; and 58-60,**

63, 65-68 are rejected under 35 U.S.C. 102(e) as being anticipated by Bommareddy et

al. (U.S. Patent 6,779,039 B1).

         For **claim 1**, Bommareddy et al. teach a method for cluster management in a

network environment, comprising:

         performing (monitor, refer to col. 3, line 19 & lines 18-20), at a first node (114 in

Fig. 1) with respect to one or more first clusters (114 and 115 in Fig. 1, and refer to col.

2, line 64) in said network environment (routes, refer to col. 2, line 58), one or more

traffic measurements (operational health of the routers, col. 3, line 19), wherein the first

node is a member of said one or more first clusters (114 is a member of 114 and 115

cluster in Fig. 1);

receiving (monitor, refer to col. 3, line 19 & lines 18-20; and detect, refer to col. 3,

line 22), at the first node (114 in Fig. 1) from one or more second nodes (120 or 122 in

Fig. 1) that are members of one or more second clusters (service providers 120 or 122

is a cluster in Fig. 1) in said network environment, one or more traffic measurements

(outbound traffic, refer to col. 3, lines 54-55) performed by the one or more second

nodes with respect to the one or more second clusters (refer to col. 3, lines 53-56, and

Fig. 1);

determining (detect, refer to col. 3, line 22), at the first node in accordance with

the one or more traffic measurements (operational health of the routers, col. 3, line 19)

performed at the first node and the one or more traffic measurements performed by the

one or more second nodes (servers, refer to col. 3, line 54), one or more reclustering

operations (migrate, refer to col. 4, line 55) to be performed in said network environment

(refer to col. 4, lines 54-56); and

dispatching (forwarding, refer to col. 3, lines 27-28), from the first node, data to

realize said reclustering (refer to Fig. 1).

For **claim 2**, Bommareddy et al. teach the method of claim 1, wherein said

network environment is a peer-to-peer environment (col. 2, line 14).

For **claim 3**, Bommareddy et al. teach the method of claim 1, wherein said reclustering operations comprise creation of a new cluster (different clusters, col. 4, line 54).

For **claim 4**, Bommareddy et al. teach the method of claim 1, wherein said reclustering operations comprise elimination of one of said clusters (from one to another, col. 4, line 56).

For **claim 5**, Bommareddy et al. teach the method of claim 1, wherein said reclustering operations comprise transfer of one or more of said nodes among between one or more of said clusters (migrate, col. 4, lines 54-56, and ISPs, col. 2, lines 58-60).

For **claim 6**, Bommareddy et al. teach the method of claim 1, wherein said traffic measurements are constantly taken (continually monitors, col. 3, line 19).

For **claim 7**, Bommareddy et al. teach the method of claim 1, wherein said traffic measurements are taken in response to a request (col. 2, line 32) for said measurements (col. 2, lines 31-35).

For **claim 8**, Bommareddy et al. teach the method of claim 7, wherein said measurements are taken for a specified period of time (periodically, col. 7, line 45).

For **claim 9**, Bommareddy et al. teach the method of claim 1, wherein said traffic measurements comprise measurements corresponding to node index updates (index, col. 4, last line, and col. 3, last line – col. 4, line 3).

For **claim 10**, Bommareddy et al. teach the method of claim 1, wherein said traffic measurements comprise measurements corresponding to entity index updates (index, col. 4, last line, and col. 3, last line – col. 4, line 3).

For **claim 13**, Bommareddy et al. teach the method of claim 1, wherein a new cluster is created in response to entity index traffic measurements rising above a specified level or entity query traffic measurements falling below a special level (migrate from one cluster to another, as demand patterns dictate).

For **claim 14**, Bommareddy et al. teach the method of claim 1, wherein one of said clusters is eliminated in response to entity index traffic measurements falling below a specified level or entity query traffic measurements rising above a special level (migrate from one cluster to another, as demand patterns dictate).

For **claim 15**, Bommareddy et al. teach a method for cluster management in a network environment, comprising:

receiving (detect, col. 3, line 22) a request (failure, col. 3, line 22) from a node to change affiliation (migrate, col. 4, line 55) with said network environment (Fig. 1. Note that col. 4, line 55 and col. 3, line 22 are related to traffic failure, and then clusters migration occurs based on the traffic failure ("request"));

determining (detect, col. 3, line 22) if the affiliation change would result in an integer-squared number of nodes being affiliated with said environment (detects one or more of various failure conditions including: (1) failure of the router LAN interface and link, (2) failure of the router due to power outage, software malfunction, hardware malfunction, or other condition, and (3) failure of the router WAN interface and link, refer to col. 3, lines 22-26. Note that once the interface and link have a failure, it is integer-squared number of nodes since they show in pairs); and

dispatching (forward, col. 3, lines 27-29) data to realize reclustering in said

environment in the case where said determining yields an affirmative result.

For **claim 16**, Bommareddy et al. teach the method of claim 15, wherein said

network environment is a peer-to-peer environment (col. 2, line 14).

For **claim 17**, Bommareddy et al. teach the method of claim 15, wherein it is

determined if the affiliation change would result in said integer-squared number of

nodes being registered in said network environment (dictate, col. 4, line 56 & lines 54-

56).

For **claim 18**, Bommareddy et al. teach the method of claim 15, wherein it is

determined if the affiliation change would result in said integer-squared number of

nodes being active in said network environment (dictate, col. 4, line 56 & lines 54-56).

For **claim 19**, Bommareddy et al. teach the method of claim 15, wherein the

affiliation change is registration (configuration, col. 2, last line).

For **claim 20**, Bommareddy et al. teach the method of claim 15, wherein the

affiliation change is entry into active state (col. 2, last line).

For **claim 21**, Bommareddy et al. teach the method of claim 15, wherein said

reclustering comprises establishment of a new cluster in said network environment

(different clusters, col. 4, line 54).

For **claim 22**, Bommareddy et al. teach the method of claim 15, wherein said

reclustering comprises elimination of an existing cluster in said network environment

(from one to another, col. 4, line 56).

For **claim 23**, Bommareddy et al. teach the method of claim 15, wherein said

reclustering comprises transfer of one or more nodes from a first cluster in said network

environment to a second cluster in said network environment (migrate, col. 4, line 55 &

lines 54-56).

For **claim 24**, Bommareddy et al. teach a method for communications in a

network environment (Fig. 1), comprising:

receiving (servers send, col. 3, line 54) data (traffic, col. 3, line 55) at a node (114

–Fig. 1) in said network environment (Fig. 1), wherein said node is a member of a

cluster (114 is a member of 114 and 115 cluster in Fig. 1) in said network environment

(Fig. 1);

selecting (col. 4, line 15) from identification numbers (IP header, col. 4, line 15)

associated with nodes in said network environment an identification number closest in

value, in view of a specified polarity, to an identification number (IP address, col. 3, line

17) associated with said node; and

dispatching (send, col. 3, line 54) said data to a node associated with the

selected identification number (col. 3, lines 53-56).

For **claim 25**, Bommareddy et al. teach the method of claim 24, wherein said

network environment is a peer-to-peer environment (col. 2, line 14).

For **claim 26**, Bommareddy et al. teach the method of claim 24, wherein the

identification number associated with the node that received said data and the selected

identification number are node identification numbers (IP address, col. 3, line 17), and

said node associated with the selected identification number is a member of said

cluster (114 is a member of 114 and 115 cluster in Fig. 1).

For **claim 29**, Bommareddy et al. teach the method of claim 26, wherein said

data corresponds to an entity index update (index, col. 4, last line, and col. 3, last line –

col. 4, line 3).

For **claim 31**, Bommareddy et al. teach the method of claim 26, wherein said

data corresponds to a node index update (index, col. 4, last line, and col. 3, last line –

col. 4, line 3).

For **claim 32**, Bommareddy et al. teach the method of claim 27, wherein said

data corresponds to a node index update (index, col. 4, last line, and col. 3, last line –

col. 4, line 3).

For **claim 33**, Bommareddy et al. teach the method of claim 24, wherein said

specified polarity indicates that the selected identification number be higher in value

than the identification number associated with the node that received said data (demand

patterns, col. 4, line 56).

For **claim 34**, Bommareddy et al. teach the method of claim 24, wherein said

specified polarity indicates that the selected identification number be lower in value than

the identification number associated with the node that received said data (demand

patterns, col. 4, line 56).

For **claims 35-44**, they are system (Title) claims corresponding to method claims

1-10, and system has memories (col. 1, line 56), therefore they are rejected for the

same reason above.

For **claims 47 and 48**, they are system (Title) claims corresponding to method

claims 13 and 14, therefore they are rejected for the same reason above.

For **claims 49-57**, they are system (Title) claims corresponding to method claims

15-23, therefore they are rejected for the same reason above.

For **claims 58-60**, they are system (Title) claims corresponding to method claims

24-26, therefore they are rejected for the same reason above.

For **claim 63**, it is system (Title) claim corresponding to method claim 29,

therefore it is rejected for the same reason above.

For **claims 65-68**, they are system (Title) claims corresponding to method claims

31-34, therefore they are rejected for the same reason above.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   **Claims 11, 12, 30, 45, 46, and 64** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bommareddy et al. (U.S. Patent 6,779,039 B1), in view of Schuetze

et al. (Pub No. US 2003/0110181 A1).

For **claim 11**, Bommareddy et al. substantially teach everything claimed as

applied above (see claim 1).

However, Bommareddy et al. fail to specifically teach that traffic measurements

comprise measurements corresponding to entity queries.

Schuetze et al. teach the method of claim 1, wherein said traffic measurements comprise measurements corresponding to entity queries (0159], line 9).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Bommareddy et al. with Schuetze et al. to obtain the invention as specified, for providing added functionality that permits users to augment queries.

For **claim 12**, Bommareddy et al. substantially teach everything claimed as applied above (see claim 1).

However, Bommareddy et al. fail to specifically teach determination of traffic-optimizing cluster size.

Schuetze et al. teach the method of claim 1, wherein determining comprises determination of traffic-optimizing cluster size (0163], line 4, and [0164], last 4 lines).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Bommareddy et al. with Schuetze et al. to obtain the invention as specified, for providing expand operation.

For **claim 30**, Bommareddy et al. substantially teach everything claimed as applied above (see claim 24).

However, Bommareddy et al. fail to specifically teach that traffic measurements comprise measurements corresponding to entity queries.

Schuetze et al. teach the method of claim 26 (see claim objection above), wherein said traffic measurements comprise measurements corresponding to entity queries (0159], line 9).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Bommareddy et al. with Schuetze et al. to obtain the invention as specified, for providing added functionality that permits users to augment queries.

For **claims 45 and 46**, they are system (Title) claims corresponding to method claims 11 and 12, therefore they are rejected for the same reason above.

For **claim 64**, it is system (Title) claim corresponding to method claim 30, therefore it is rejected for the same reason above.

3.   **Claims 27, 28, 61, and 62** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bommareddy et al. (U.S. Patent 6,779,039 B1), in view of Garcia-Luna-Aceves et al. (Pub No. US 2002/0129086 A1).

For **claim 27**, Bommareddy et al. substantially teach everything claimed as applied above (see claim 24).

However, Bommareddy et al. fail to specifically teach the identification number associated with the node that received said data and the selected identification number are cluster identification numbers, and node associated with the selected identification number is associated with a cluster other than the cluster with which the node that received said data is associated.

Garcia-Luna-Aceves et al. teach the method of claim 24, wherein the identification number ([0037], lines 5-6) associated with the node that received said data and the selected identification number are cluster identification numbers, and node

associated with the selected identification number is a member of a cluster other than the cluster of which the node that received said data is a member ([0037], lines 4-7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Bommareddy et al. with Garcia-Luna-Aceves et al. to obtain the invention as specified, for lookup of a routing-table entry based on cluster number and destination address.

For **claim 28**, Bommareddy et al. substantially teach everything claimed as applied above (see claim 24).

However, Bommareddy et al. fail to specifically teach said node associated with the selected identification number is selected randomly from a plurality of nodes associated with the selected identification number.

Garcia-Luna-Aceves et al. teach the method of claim 27, wherein said node associated with the selected identification number is selected randomly from a plurality of nodes associated with the selected identification number (maximum possible nodes, [0115], line 10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Bommareddy et al. with Garcia-Luna-Aceves et al. to obtain the invention as specified, for expediting the lookup time at the first hop router and also at the second and successive hop routers receiving the packets.

For **claims 61 and 62**, they are system (Title) claims corresponding to method claims 27 and 28, therefore they are rejected for the same reason above.

Response to Amendment

4.   Applicant's amendment filed 3/5/2008 has been received and considered.

Response to Arguments

5.   Applicant's arguments filed 3/5/2008 have been fully considered but they are not

persuasive.

6.   Applicant argues that Bommareddy et al. fail to disclose, teach, or suggest the

node is a member of a cluster, as in amended claims 1, 24, 35, and, 58.

        In response, the Examiner respectfully disagrees.

        For claims 1, 24, 35, and, 58, the router 114 is a member of 114 and 115 cluster.

As to the servers, it can be seen that the server 120 or 122 is also a cluster in Fig. 1 of

Bommareddy.

        See more details of the amended claim1 rejection above.

7.   Applicant argues that Bommareddy does not teach the method of receiving a

request from a node to change affiliation in claims 15 and 49.

        In response, the Examiner respectfully disagrees.

        The "migrate" described in col. 4, line 56 by Bommareddy and traffic failure

described in col. 3, lines 21-30 are in the same endeavor. When traffic has a failure,

then clusters migration occurs based on the traffic failure ("request"). That is "change

affiliation" as claimed in claims 15 and 49.

8.   Rejection of dependent claims remains effective.

Conclusion

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to WANDA Z. RUSSELL whose telephone number is (571)270-1796. The examiner can normally be reached on Monday-Thursday 9:00-6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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